sector. It will also avoid costs through the nonduplication of existing state resources. Even though it's a logical network in that regard it is a stand alone network in that it will be dedicated to education in terms of function, service and accountability. The network capacity will be dedicated, measurable and secure and there's no risk of cross-subsidies with users of a larger state network. So there's no risk that capacity once set aside for education entity will not be available when needed.

Who is building this network? Senate bill 6705 created a 16-member telecommunications oversight and policy committee, which we call TOPC, that's comprised of legislators, agency executives, educators and the state librarian, and this group has final authority of the network language and construction. DIS provides staff to the TOPC and our director, Steve Kolodny, serves as the convenor. The legislation puts the planning responsibility basically on three agencies. It directs the Information Services board to develop a technical plan for the construction of the network. I'm working with representatives from K-12 and higher education as well as with DIS. DIS developed and approved a network plan in late May

1996. The TOPC also approved that plan on May 30. The office of superintendent and the higher education coordinating board are working to prepare a proposed network governance plan. These entities have completed a joint governance plan which will now be reviewed by TOPC at the September 30 meeting. The headquarters will also submit proposed location plans proposing specific locations to be served by the network.

When these plans are submitted, the TOPC must prepare a final network and implementation plan setting forth locations to be served by the network, service delivery specifications and a network governance structure as well as a phased technical plan, and the construction will begin upon completion of the plan. In fact procurement is going on as we speak. Requests for proposals are being prepared and we expect them to be published shortly.

Where is this network going to go? Well, again, this is a backbone network at this point and the legislation calls for it to be built in three phases. In phase 1 it will link main campuses of the six public baccalaureate institutions, the branch campuses, UW and WSU and the main campuses of the 32 community and technical colleges as well as the

educational service districts. In phase 2 this backbone will be extended to each of the state's 296 school districts as well as the public higher ed off campus and extension centers and (inaudible). It will also serve the independent nonprofit baccalaureate institutions as prioritized by the TOPC, so TOPC has a little more to do in that regard.

In phase 3 the network will expand locations still to be determined by TOPC but which, according to the legislation, may include public libraries, the state and local governments, community resource centers and the private sector. What services will it provide? Again, it's a digital backbone so it will provide a variety of services including Internet and Internet services, including worldwide-web-based application, electronic mail. It will provide group video conferencing to extend the delivery of classes through distance learning in a classroom environment. It will allow educators and others to meet with each other in large groups. It will also provide full motion video distribution using digital satellite technology.

How will the K-20 network be funded? I heard Mike Bookey say it earlier that access to the district might be free. In fact nothing is free. And

the TOPC still has to make the final decision on this, but currently the ISP, the headquarters and OSPI have each proposed that there will be an internal service funding mechanism like a revolving fund under which the backbone services are provided to the participating institutions on a cost reimbursement basis.

The formulas for what costs there would be would be determined by OFM after consultation with DIS and network users so that you would have sufficient but not excessive revenues and that the institution will pay an appropriate share of the costs. However, the fund would also under their plans receive initial capitalization from the 1996 K-20 appropriation of $42 million. And this is only talking about the backbone again, and the purpose of this is to avoid dependence on continued legislative appropriations. Under the proposal the equipment facility that resides at particular institutions and which are not shared among all the institutions but beyond premises equipment and maintenance would continue to be funded on an individual basis through the state budget process.

So that's an overview of the K-20 network. There's still much work to be done. The next TOPC meeting will be on September 30. They will be looking

at governance. After that they will look at funding and after that they must approve the acquisitions on equipment to actually start construction. So with that project we're going to expand the state infrastructure and we still leave a lot of responsibility to the local school district. And you've asked me to talk a little bit about the subsidies that the Telecommunications Act is looking at. DIS -- I can't speak for the TOPC, the TOPC is 16 independent people and they don't necessarily have a collective voice at this point. However, speaking for DIS, I will tell you some of the concerns we have. We are not opposed to subsidies as such, but we think they must be very carefully scrutinized and narrowly circumscribed. You need to look out for the effect that subsidies will have on competition in the marketplace because we believe that competition is going to be the most effective driver downward of prices, that they be neutral, and that they don't favor specific service providers over others. We're also concerned that the net effect of any national subsidy system be one that benefits Washington state, and if there is a national system are there going to be net outflows or inflows into Washington state because otherwise you're cost shifting, and, while I

don't doubt that the people of Massachusetts or North Dakota have need for telecom services, I'm not sure that the taxpayers of Washington are the proper sources of revenue for them.

Finally, we're very concerned that the money providing subsidies not be a substitute for seeking efficiencies. School districts looking at high technology or advanced services still need to get their priorities in order and the IT planning has to reflect the priorities of each school district, and some are making IT, or information technology, a priority in their school districts and others are not. And that has to be a local decision. Also, the readiness of each school district to link up. Where there is not proper language it doesn't make sense to give much money to a school district. I've heard war stories of school districts receiving and passing the technology level and simply not knowing what to do with the money, looking at the number of teachers they have, dividing the money by the number of teachers and giving $127 to each teacher. The teacher goes out and buys some VCRs and that's your IT spent. So you need to look at the sufficiency of planning.

Finally, we're concerned that the criteria does not get in the way of any kind of cooperative

ventures among various educational sectors. That where there is a shared infrastructure -- and in Washington state we are committed to a shared infrastructure where we do not duplicate infrastructure among the various educational sectors -- that this not somehow disqualify the various sectors participating from any of the benefits of a subsidy mechanism that's finally put in place.

Those are the DIS's concerns in a nutshell. Be happy to answer any questions you have.

CHAIRMAN NELSON: Those cautions are very well taken and I think, as you may know, the state members of the board are concerned that the FCC members of the board want to have a national cookie cutter program. I'm wondering if the DISs of the various states have a national organization and, if they have, if they share Washington state's concerns, if they've shared them with the FCC commissioners.

MR. DANNER: In fact there is a national organization. It's NASIRE, which stands for the National Association of State Information Resource Executives or some such thing. They are having a convention within the next six weeks in Portland, Maine, and I am not sure whether they filed in the recent FCC proceeding, ongoing FCC proceeding. DIS

filed reply comment on May 1 in which we raised some of these concerns. Time restraints keep us from participating even though we would like to. I would like to -- I would find out before Friday whether NASIRE has in fact participated and if not I will take it to my director and see whether he would like to raise that with NASIRE.

CHAIRMAN NELSON: I think it would be the next three or four weeks are actually the critical weeks for trying to persuade FCC commissioners, and the chairman of the FCC has announced that he might favor a one percent tax, if you will, on all carriers's revenues which would obviously be flowed through to end users as a way to fund the schools and libraries piece, and as far as we can tell from talking to the FCC staff I think really a one-size-fits-all program, so I think to get the flexibility to states and, as you say, local governments -- local school districts are very used to autonomy -- it would be very prudent if they could make their voices heard soon.

MR. DANNER: Thank you. I will certainly pass that upstairs.

JUDGE FFITCH: Any other questions?

COMMISSIONER GILLIS: David, you mentioned

the importance of local control or local school districts putting together their own IT plans or being part of that. Do you have any process suggestions on that at all?

MR. DANNER: Well, the governor's telecommunications task force recommended that DIS, UTC or Washington state extension service and CTED, the Community Trade and Economic Development Department, look at going to some communities and discussing ways in which demand can be aggregated so we can get private sector folks in these smaller towns to work together to attract the infrastructure providers to their areas. That's certainly one thing we're looking at. We haven't -- it's been a very busy summer and we're hoping to spend a little more time on that. So that's one way that we have on our mind.

COMMISSIONER GILLIS: Sounds like a good idea. The digital backbone that you mentioned, what are the components of that? Is that fiber cable software or what is that?

MR. DANNER: We're looking at a wire line transport. It's going to be various capacities and various links depending on who is using it. It's going to be scaleable so that we're not building big trunk lines where there's not demand. Some links will

be OC3. Others will be a combination of T1s and T3s as needed. Then upgrades when we expect demand to increase, and then they will go to what under the current governance plan could be something called the CNAC, which is an advisory body which I can't tell you what it stands for, and I will have to get back to you what that acronym actually is, but they will propose what upgrades are needed during the next biennium and deal with them basically through the process.

COMMISSIOENR GILLIS: As a part of the process is there a detailed inventory being conducted of what facilities are in place now that potentially could be utilized?

MR. DANNER: In terms of what state backbone facilities there are?

COMMISSIONER GILLIS: Well, not just state, but in general in options, privately owned, state-owned, the network facilities that are in place now, is there an inventory being conducted as a part of the process?

MR. DANNER: I don't believe there's an inventory being conducted as part of the process. We are going through requests for proposals to all of the private providers who will come back and tell us what services they can provide in certain parts of the

state. We want to -- DIS, when I say there's a DIS backbone, 87 percent of our telecommunications service at DIS are leased from the private sector so the state really owns very little infrastructure and we have not yet taken an inventory of what private services are out there. Now I have heard from some folks in the K-12 community that they are looking in the -- OSPI has to put a proposed location plan forward as part of this planning process, and they were surprised at how much progress has been made by the school districts in moving ahead with IT and there are still haves and have-nots but for the most part people are further along than they expected and very pleased by that.

COMMISSIONER GILLIS: I guess since we don't have an inventory we don't know actually, but a general impression of your technology of the network is the goal to provide a digital network to these various nodes that have been identified. Would you see the chief value of such a network providing the feasibility of making those connections not thinking about the cost, or is it providing affordable connections or a combination or is that something you can discern? Does that make sense as a question?

MR. DANNER: Well, yeah. The backbone is intended to provide the services that the schools and

colleges will need but you're creating -- by adding it to the DIS network you're enlarging the market. As volume purchasers they expect the prices to go down and we expect this to be the most cost-effective way for the schools and the colleges to get on, to get the kind of services they want. So if that's your question, yeah. That's the intent.

COMMISSIONER GILLIS: I guess basically the question, what I am struggling with is, are we missing key physical pieces of the network that's needed to reach these nodes with the capacity that is desired, which is, I guess, sort of a level one question, and if the answer is yes, then I suppose those need to be obtained or built or whatever. A level two question is maybe they're there at this point but it's just simply not affordable, which is a different issue that you're talking about in using state market muscle to lower the price.

MR. DANNER: Again, we expect backbone to provide all the service that will be required by all the institutions that plan to use it. It's going to be a very robust backbone network. When you get off into the spurs -- and again we plan to go out to the school districts, 296 of them, and to ESDs, the community/technical colleges and so forth. We want to

scale the network so that it meets demand so we can anticipate demand and meet that demand. Insofar as those people are part of the dots on the map that you saw Mike put up earlier, and I didn't bring any overheads of my own today, but it will go to the front door of every school district in the state.

Now, whether there's sufficient infrastructure past the front door is another matter that is largely a local issue, one of local priorities. The TOPC would also be addressing that question because there are questions about equity. How do you get into those have-not areas and what's the proper way to do it but recognizing there's also local autonomy?

CHAIRMAN NELSON: For the record's sake, Dave, the existing network, isn't WSU's network microwave based?

MR. DANNER: It's microwave based.

CHAIRMAN NELSON: And you are going to be adding satellite capacity with this upgrade, right?

MR. DANNER: We will be adding satellite up-links which will then be able to be done by digital dishes. The microwave network would be continued to be used although by putting in some of this more robust fiber. I don't know what the long-term

implications of that for WSU would be.

JUDGE FFITCH: Any other questions? Thank you very much. Ron Johnson.

MR. JOHNSON: If I knew TVW was here I would have worn a tie. I'm Ron Johnson. I'm vice-president for Competing Communications at the University of Washington where I'm also a faculty member in the school of library science, which I guess gives me a two-fer on the subject. I also am -- as a principal investigator on some of the earlier K-12 Internet projects done in this state and I am on the technical work group to do the design work for that TOPC network infrastructure that a couple of folks have been talking about.

We at the University of Washington have a fairly extensive educational and health care network infrastructure. Two examples -- three examples. Two examples are we run an educational Internet facility that includes almost every institute of higher education with a budget of more than $10 million a year in Washington, Alaska, Montana, Idaho, North Dakota and Oregon. We additionally run the WAMI infrastructure. WAMI is a program of Washington, Alaska, Montana and Idaho in which the legislatures of those four states agree to cooperatively fund programs

at the University of Washington to allow for medical education and a certain amount of health care to take place cooperatively across the region. So we are fairly involved in the history and future of telemedicine as well as present delivery of a lot of services there.

Like it or not, we've come to live in a digital age. It's true in education. It's true in K-12, it's true in research universities. It's true in health care. It's progressively becoming truer in the K-12 -- in the library world than it is already in a research university world. Whether we like it or not I think we have to face the truth. People's prospects for education and hence for jobs and, in a real sense, for the kind of health care that they are able to receive is going to be a function of their access to telecommunications infrastructure as all of those products -- I will call them products -- come to be available in primarily digital forms in different parts of the state region.

The bottom line for us is that basic access to telecommunications services by people and institutions is more essential than it was at the beginning of the university service. Questions are, what kind of access, for whom, and how do we engineer

it and how do we pay for it? In the education world we're at this point moving into a serious revolutionary period in the evolution of learning technologies. And almost all of those learning technologies that are promising are based upon high speed services that are a little bit deployed and not really very deployable beyond a pilot and test cases. These high speed services are things like inter-institutional SONET services, which is easy to get in a place like Seattle but hopeless in a place like Colville. Those are the raw materials of inter-institutional transmission of information, distribution channels of educational and health care product.

In the subscriber loop and in many respects in the future, I think that the key to educational reform and health care improvement is the direct access to people in their houses and businesses, at their place of business. In the subscriber loops in order to get -- we need high speed services. We need high speed IDS to actually be there and be deployed. We need ADSL and HDSL and so on to be deployed. ISDN is -- I still don't know. ADSL is asynchronistic digital subscriber link. HDSL is the fast version of it and so on. DBS distribution in which there's

actually digital DBS stuff going over it, not just shopping channels and movies. Digital distribution of educational objects across the system is something that Microsoft and other companies plan on, and it's something which, again, only works in a few pilot modes in a few pilot test sites. We need cable modems, not just ADSL. We need TCI and Viacom and Cox and Warner to begin to deploy high speed cable modems at reasonable provisions in their cable systems around the state. We need all of those technologies to sort of evolve further and become more pervasive.

How do we get that? On the invasion front I expect that that is sort of synonymous with more investment. Somebody is going to have to find a way to invest in these infrastructures in order to make them more usable and then more deployable across the state of Washington and the nation. We need pervasive availability of these things. That's a problem in the state with a rural telecommunications problem in the sense of have and have not infrastructure. For us to deploy educational opportunities for credit classes to people in their homes across the state means that the distribution channel has to actually work in those parts of the state. Otherwise we can't find the product and we face a serious problem of making those

things generally available outside of metropolitan I-5 corridor. They also have to be affordable for us for education in general, health care in general and for the subscribers. How to make that happen is your problem.

CHAIRMAN NELSON: Thanks.

MR. JOHNSON: What I think is the best approach in making that happen, to making invasion happen, to making the products available, to make them affordable is to incent as much competition as is possible through the deregulation process. That it is through having multiple suppliers, having people who can make money by investing in the new technologies that we're likely to get the best products. That's been true in general in the digital world, and I think it will continue to be true. So what we would urge you to do is, to the degree possible, pursue models that assure, insure competition in the local loops and the infusion of investment capital into invasion and a broad deployment rather than provided to achieve the same end by subsidies, which would be very difficult to target in terms of paying for something that you actually know that you want to get and then getting it and being happy with it for a very long time. These are very dynamic technologies. They're going to

change a lot and it's very difficult to predict now what one would subsidize or kind of result one will get through some kind of subsidy.

On a somewhat off topic, but I think on topic, I also think it's very important to assure educational access to things, to band width, in cable systems, in spectrum allocations and the like. The University of Washington, WSU, a number of K-12 districts, ESDs, Seattle School District, try very hard to use television and similar vehicles to reach the audiences they need to reach, the students and the parents, and it's very difficult for us to get access to spectrum without sort of legislative set-asides that insure that we can get access to each channel in the pay channel world, that we can get access to -- let's say if ADSL does work and you can get the equivalent of cable channel over the central office of a telephone company, we need to be sure that we also have access to the equivalent of educational offerings in those forms, otherwise it simply won't happen. We don't have the money to go out and buy a spectrum in these auctions. No one is going to give it to us. It's only going to come through a deregulation and competition process and education is assured of some reasonable application to these old modes used with

the new nodes. Old television combined with new web services have meant radically new and improved product. If we don't have access to the television component of it we can't deliver the web component of it. It's true for K-12 through postdoctoral training for physicians in Yelm. That's my message.

CHAIRMAN NELSON: Thank you. That last digression is interesting. Of course you know this commission doesn't do spectrum allocation. That's a matter for our federal counterparts, but I've actually heard from other superintendents who simply want some, what he represents, capacity line fallow in the FM band somewhere for broadcasting announcements to migrant workers in the middle part of the state. Can't forget our old technologies too.

MR. JOHNSON: A lot of the technologies that are being used now are combinations of old technologies with new technologies. The dial-it-up and get the stuff back over a DBS link is one model for distributing services, and it's very difficult for us to take the few resources we do have and attempt to engineer coherent approaches when we have a very unpredictable world in respects of half of the technologies that we need to use.

CHAIRMAN NELSON: Just one more question.

You mentioned the WAMI program. Would you assume because you do serve the rural residents of all those states that are considered a lot more rural than we are that you would be eligible for the reimbursements under the health care provisions of this act?

MR. JOHNSON: We're hoping that that would be the case.

CHAIRMAN NELSON: Thank you.

JUDGE FFITCH: Any other questions? Thank you, Mr. Johnson. John Stanton.

MR. STANTON: I don't know if it's the progress or the absence of it. The last speaker said he came tieless. I came jacketless and tieless. My name is --

CHAIRMAN NELSON: TVW is recording it all.

MR. STANTON: For posterity. My name is John Stanton. I grew up just about a mile from here. I'm today the chairman and chief executive officer of Western Wireless Corporation. We are a wireless company providing service using both cellular and PCS technologies to about 41 percent of the land and about 10 percent of the population in the United States. We're based here in Washington state, in Issaquah in fact. We employ about 525 people in the state of Washington here. In Washington state we

currently provide service to Vancouver, Washington and we are -- through a license which we received last year and just last quarter we received licenses to provide services in Spokane, Walla Walla, Bremerton, Aberdeen and Yakima through new PCS licenses that the FCC recently issued, and we would expect to provide service through our partnership in those markets next year.

I have some longer written comments that I will provide to the Commission, but I will try and make a few brief points. First of all, let me describe what being a rural wireless carrier really means. We -- and I will do so by using four examples. Today in the Antelope valley and the Reese River Valley in the state of Nevada we provide universal service. We do that in an unusual way. Nevada Bell literally did not want to provide service to these small communities and we had an opportunity in cooperation with the Public Service Commission of Nevada to, under a stipulation order, to provide wireless services as the primary means of communications to these small communities, and we do so fulfilling responsibilities to all consumers as well as hospitals and schools in the community.

As a second example in Hawaii, the small

town of Kao on the big island, the Hawaii Public Service Commission finally tired of the local quality of service being provided by the wired local exchange carrier in the community and as a consequence literally put up for bid earlier this year the opportunity for wired and wireless carriers to provide service to that local community. In that case we bid to provide the service and another wireless carrier actually won the bid and is attempting to put services together. It's been thwarted by the frustrations in that both the regulatory process as well as the legal system in that GTE, the local wired carrier, sued both the Commission and the wireless carrier in an attempt to thwart the effort of the Commission to deliver high quality service to this small community. But wireless services, whether cellular or PCS in that case, we believe could substantially improve the quality of service being provided.

Let me bring two examples to your attention specifically related to schools and hospitals. Western Wireless through our operating entity in Billings, Montana in 1994 went through a process with St. Vincent Hospital to respond to the poor quality of telecommunications services that they felt they had internally. We offered an in building wireless system

to literally put a phone on the belt of every doctor and administrator in the hospital, and with great success it provided high quality services for what we think not only improves the productivity but the quality of patient care being provided. Class link, which is a service being provided through the cellular technology industry association to at least one school in all 50 states, provides similar services to schools where we're able to, using wireless services, literally put a phone on the belt of every speaker -- every teacher.

Mike Bookey, the first speaker, referred to the low quality of infrastructure that's available in schools with very few phones per student, much less per teacher, per administrator or per parent. By providing wireless services we can get around the difficulty of having to build new infrastructure and add the benefits of mobility to the users in the case of the schools, the teachers, the administrators and in the case of the hospitals, the doctors and the nurses.

I think that as we move forward we view there being as five key points to think about in terms of the current proceeding before the joint board. First of all, we believe that wireless in many cases

is the least expensive mechanism for delivering communications services. We think that's particularly true where the infrastructure is limited in such areas as schools and in some cases hospitals. The Hatfield study, which has been provided to the joint board, I think addresses that effectively.

Second, we think that the local exchange carriers today enjoy a franchise monopoly. The absence of competition we believe eliminates incentives for innovation. Simply put, if you look at the presence and the role that local exchange carrier competition in urban areas, primarily wired today, has provided, the great benefits, both to consumers as well as hospitals and schools, we think is possible in rural areas. But not without two key economic changes. Today only the local exchange carriers receive subsidies. The subsidies are paid to the carriers and there's nothing that guarantees that the benefits that are designed to be delivered ultimately to consumers, schools and hospitals, will in fact be delivered by those carriers. Second, and perhaps most frustrating to us, is that as wireless companies we actually pay those subsidies. The interconnection proceeding that the FCC officiated is helping to address that, but what we've discovered through that